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Before the FEDERAL COMMUNICATIONS COMMISSION Washington, D.C. 20554

CHOOL OF THE SECRETORY

In the Matter of

Telephone Number Portability Cost Classification Proceeding CC Docket No. 95-116 RM 8535

APPLICATION FOR REVIEW

The Bureau's order¹ conflicts with the Commission's number portability cost recovery regulations and the Act itself in two important respects. Bell Atlantic² asks the Commission to reverse the Bureau's determinations and to instruct the Bureau not to apply them when it reviews the number portability tariff filings.

Bell Atlantic asks that the Commission act expeditiously on this application. The Bureau's deviations from the Commission's rules are obvious. Local exchange carriers will be filing number portability cost recovery tariffs under those rules over the next couple of weeks. The Bureau will immediately investigate those tariffs, and those investigations must be completed within five months. The Commission needs to provide its guidance to the Bureau so it can be used in those tariff proceedings.

List ABCDE

¹ Telephone Number Portability Cost Classification Proceeding, DA 98-2534 (rel. Dec. 14, 1998) ("Bureau Order").

Bell Atlantic-Delaware, Inc.; Bell Atlantic-Maryland, Inc.; Bell Atlantic-New Jersey, Inc.; Bell Atlantic-Pennsylvania, Inc.; Bell Atlantic-Virginia, Inc.; Bell Atlantic-Washington, D.C., Inc.; Bell Atlantic-West Virginia, Inc.; New York Telephone Company and New England Telephone and Telegraph Company.

<u>First</u>, the Bureau order would appear to prevent local exchange carriers from recovering through their end user surcharges certain costs that they unquestionably incurred solely to provide number portability.

In the regulations adopted in its number portability cost recovery order, the Commission authorized LECs to recover "their carrier-specific costs directly related to providing long-term number portability." The Bureau, however, has not followed this direction and has concluded that LECs may not recover certain costs even though they *are*, in fact, "directly related to providing long-term number portability." As the attached declaration of Robert W. Crandall demonstrates, from an economic perspective, the costs in question are direct number portability costs. The Bureau's error appears to be caused by the Bureau's too narrow understanding of what it means "to provide number portability."

The Communications Act defines number portability as "the ability of users of telecommunications services to retain, at the same location, existing telecommunications numbers without impairment of quality, reliability, or convenience when switching from one telecommunications carrier to another." The last phrase is important — Congress understood that numbers would not truly be portable if consumers suffered a loss of "quality, reliability, or convenience" when they changed carriers.

Therefore, "providing long-term number portability," as those words are used in the cost recovery rules, necessarily includes enabling numbers to port in a way that customers suffer no "impairment of quality, reliability, or convenience." The costs that are incurred to ensure that

⁴⁷ C.F.R. § 52.33(a).

^{4 47} U.S.C. § 153(30). This language was picked up by the Commission in its rules. 47 C.F.R. § 52.21(p)

there is no such impairment are "costs directly related to providing long-term number portability" to the exact same extent as the cost of the software that effectuates the port itself.

The Bureau, however, completely ignored these words. In fact, the Bureau seems not even to know that these words are in the statute.⁵ Thus, the Bureau brushed aside arguments made by Bell Atlantic and others that certain OSS modifications were necessary to ensure that there was no "impairment of quality, reliability, or convenience" with references to the Commission's discussion of QoR technology.⁶

As a result, the Bureau would exclude costs to modify operation support systems except "the systems for uploading and downloading LRN information to and from the regional Number Portability Administration Centers (NPACs) and for transmitting porting orders between carriers." Apparently excluded are costs to modify "existing systems for providing repair and maintenance services, 911 services, service ordering, and other network functions." However, it was necessary to modify certain systems of these types in order to ensure that customers would experience no impairment of quality, reliability, or convenience. To characterize these modifications as "general network upgrades," as the Bureau does, is simply not accurate. These changes were made because of number portability, and they would not ever have been made were it not for number portability. A couple of examples illustrate this.

Bell Atlantic cited the statutory language to the Bureau at 4 of its comments.

⁶ Bureau Order ¶ 13.

⁷ Bureau Order ¶ 14.

⁸ Bureau Order ¶ 8.

⁹ Bureau Order ¶ 11.

For example, the system that supports 911 service was modified to permit a carrier to update the 911 database for telephone numbers in NXXs assigned to another carrier and to enable 911 personnel to direct database problems to the correct service provider. This work would not seem to fit within the Bureau's narrow reading of the Commission's rules. However, few customers would find porting satisfactory if they might not be able to use 911 or if that service was not as reliable, and the Commission presumably shares this view. These changes were clearly necessary to ensure that there was not impairment of quality and reliability and the cost of making them is a cost of providing number portability.

Bell Atlantic also had to modify a number of systems to enable it to recognize that telephone numbers in NXXs assigned to other carriers had been ported and were, in fact, used by Bell Atlantic customers. For example, Bell Atlantic had to modify certain maintenance and repair systems to permit them to deal with such telephone numbers. If these changes had not been made, customers who ported their telephone numbers in to Bell Atlantic would not have the same quality and reliability of service as other Bell Atlantic customers, or presumably as they had with their previous carrier.¹⁰

Second, the Bureau found that the LECs could not recover their "advancement costs" — the cost of spending money sooner rather than later. These are real costs — costs for "the initial physical upgrading of the public switched telephone network" — and are, therefore, recoverable.

The Bureau's apparent decision that billing system changes are not recoverable is inconsistent with the Commission's decision that similar changes in connection with 800 database access should be treated as exogenous because those expenses "were incurred specifically to implement basic 800 data base service" (800 Data Base Access Tariffs, 11 FCC Rcd 15227, 15297 (1996)), a standard that is similar to the one contained in section 52.33(a).

Telephone Number Portability, 13 FCC Rcd 11701, \P 39 (1998) ("Third Report and Order").

Because of number portability, for example, Bell Atlantic had to buy switch processor equipment in 1997 and 1998. In the ordinary course of its business, Bell Atlantic would not have needed to buy this equipment until 2000 or 2001. Because it eventually would have needed the equipment anyway, Bell Atlantic does not claim that the whole cost of the equipment is recoverable. However, the cost of advancing the purchases two or three or four years is a direct cost of number portability, precisely because it was incurred specifically to provide number portability and would not have been incurred otherwise.

The Bureau, however, says that a LEC may recover advancement costs, but only to the extent that the equipment actually cost more in the earlier year because of the addition of a number portability capability that otherwise would not have been included. "LECs may claim only the advancement costs associated with the difference between the costs of the upgrade with the LNP functionality and its costs without that functionality." This, of course, makes no sense, because if the equipment actually cost more because of the number portability functionality, then that already would be a direct cost of number portability and would not be an advancement cost at all.

The recovery of these advancement costs is completely consistent with the Commission's order, which found that carriers should be allowed to recover "that portion of a carrier's joint costs that is demonstrably an incremental cost carriers incur in the provision of long-term number portability." Under this formulation, Bell Atlantic could not recover the entire cost of the processor, but it can recover the incremental cost caused by number portability — namely, the cost of having to buy the processor early.

Bureau Order ¶ 30.

Third Report and Order \P 73.

Conclusion

For these reasons, the Commission should confirm that its rules permit LECs to recover all their costs incurred to provide number portability, including those costs incurred to ensure that customers can port without any impairment of quality, reliability and convenience and the costs of advancing investment which number portability required to be made sooner.

Respectfully submitted,

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Dated: January 13, 1999

Declaration of

Robert W. Crandall

Federal Communications Commission Washington, DC 20554

In the Matter of)	
)	CC Docket 95-116
Telephone Number Portability)	
Cost Classification Proceeding)	

Declaration of Robert W. Crandall¹

1. I have been asked by Bell Atlantic to provide an economic analysis of some of the issues raised by the Memorandum Opinion and Order ("Order") released by the Common Carrier Bureau in this proceeding on December 14, 1998. This Order provides guidelines to LECs on the nature of the costs that may be recovered by local-exchange carriers (LECs) for establishment of long-term number portability.

Summary of Conclusions

2. The Bureau has provided LECs with guidance as to the nature and extent of the costs that they may recover for establishing long-term number portability, but in at least two respects this guidance is deficient, inconsistent with economic principles, and threatens under-recovery of

¹ Senior Fellow, Economic Studies, the Brookings Institution, Washington, DC. The views expressed herein are those of the author and should not be construed to represent the views of the Brookings Institution, its Trustees, or its other staff members. My curriculum <u>vitae</u> is appended to this declaration.

the relevant costs. First, the Bureau concludes that LECs may recover the costs of modifying OSS only if such costs are directly *for the provision of* number portability, but not if such expenses result from the "impact of portability on existing systems..." required to maintain service quality on ported lines.² This conclusion is at odds with any reasonable economic definition of the direct incremental costs of providing long-term number portability.

3. Second, the Bureau appears to allow the LECs to recover only the <u>incremental</u> "advancement" costs -- the acceleration of capital expenditures -- that are required to achieve long-term number-portability requirements.³ But these incremental costs are allowed to be recovered directly, whether "advanced" or not. The Bureau should also allow the LECs to recover the additional costs created by <u>advancing</u> of other investments, <u>i.e.</u>, the opportunity cost of investing the funds sooner than would have occurred without the requirement of providing long-term number portability.

The Issues

4. The Commission's rules allow LECs to recover their "... costs directly related to the provision of number portability." The Bureau attempts to provide LECs with a set of guidelines that identify these costs. In so doing, the Bureau is attempting to provide a framework that

² Order at par. 8.

³ Order at par. 30.

⁴47 C.F.R. ¶ 52.33(a).

separates costs attributable to number portability from the costs of functionalities that are related to the ability to deliver a variety of other services. Unfortunately, the Bureau's guidance is mistaken in two respects: (i) the recovery of OSS costs required to maintain service quality on ported lines and (ii) the costs imposed on LECs due to the advancement of certain capital expenditures due to long-term number portability.

- 5. First, the decision by the Bureau to disallow OSS costs required to maintain the quality of service upon the institution of long-term number portability is clearly in error. The 1996 Telecommunications Act requires LECs to institute number portability without impairment of service quality. If the LECs must modify their OSS to maintain the reliability and quality of service upon the adoption of long-term number portability, these costs are properly included in the domain of costs attributable to number portability. The Bureau would exclude these costs from the cost-recovery mechanism in this proceeding if they were "incurred because of the impact of portability on existing systems for providing repair and maintenance services, 911 services, service ordering, and other network functions." (emphasis supplied) But if number portability degrades service along any of these dimensions, it reduces service quality by any definition.
- 6. Surely, the Bureau would not consider a degradation of, say 911 services, as inconsequential. If number portability degrades 911 services on ported lines, the Bureau would

⁵ 47 USC ¶ 153(30).

⁶ Order at par. 8.

expect the LECs to make the necessary modifications in OSS to restore them. The cost of these modifications would be caused entirely by the adoption of number portability and, therefore, should be recovered by the LECs in the same fashion as any other expenditure that is directly *for the provision*⁷ of number portability.

- 7. Similarly, any <u>advancement</u> of LEC capital expenditures that is required to implement long-term number portability is clearly a cost in and of itself. If the only way to implement number portability is to replace or augment a piece of capital equipment, say, four or five years sooner than otherwise would be required, the opportunity cost of deploying this capital four or five years sooner should be defined as a recoverable expense. This cost is in addition to the <u>incremental</u> cost of the functionality required in the equipment to provide the number portability.
- 8. The Order provides that the "...LECs may claim only the advancement costs associated with the *difference* between the cost of the upgrade with the LNP functionality and its costs without the functionality." 8 (emphasis supplied) This clearly is in error, for it is not simply the <u>difference in costs</u> that is being advanced. The entire capital expenditure -- the "upgrade" in the Order's language -- is being advanced in time, requiring the LEC to fund the entire investment sooner than it would otherwise have done.

⁷ Id.

⁸ Order at par. 30.

9. To the extent that long-term number portability advances the capital expenditure program of any LEC, it increases the discounted present value of capital deployed in delivering regulated services. The LEC is entitled to a recovery of the entirety of this increase in the present value of capital expenditures, not simply the increment in the cost of individual pieces of capital equipment required to deliver long-term number portability.

10. Both of these costs -- OSS modifications to maintain service quality and reliability and the advancement of investment -- are direct incremental costs of number portability.

Therefore, from an economist's perspective, they should be recovered in the same way as are the other costs of providing number portability.

I hereby declare, under penalty of perjury, that the foregoing is true and correct to the best of my knowledge and belief.

Robert W. Crandall

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<u>The Extra Mile: Rethinking Energy Policy for Automotive Transportation</u>. (with Pietro S. Nivola) Washington, DC: The Brookings Institution/Twentieth Century Fund, 1995.

Manufacturing on the Move. Washington, DC: The Brookings Institution, 1993.

After the Breakup: The U.S. Telecommunications Industry in a More Competitive Era. Washington, DC: The Brookings Institution, 1991.

<u>Changing the Rules: Technological Change, International Competition and Regulation in Communications.</u> (Edited with Kenneth Flamm), Washington, DC: The Brookings Institution, 1989.

<u>Up from the Ashes: The U.S. Minimill Steel Industry.</u> (With Donald F. Barnett), Washington, DC: The Brookings Institution, 1986.

Regulating the Automobile. (With Howard K. Gruenspecht, Theodore E. Keeler, and Lester B. Lave), Washington, DC: The Brookings Institution, 1986.

<u>Controlling Industrial Pollution: The Economics and Politics of Clean Air.</u> Washington, DC: The Brookings Institution, 1983.

The Scientific Basis of Health and Safety Regulation. (Ed. with Lester Lave), Washington, DC: The Brookings Institution, 1981.

<u>The U.S. Steel Industry in Recurrent Crisis</u>. Washington, DC: The Brookings Institution, 1981.

Articles, Reports, and Contributions to Edited Volumes:

"The Impact of Telecommunications Deregulation on Midsize Business," in Gary D. Libecap (ed.), Advances in the Study of Entrepreneurship, Innovation, and Economic Growth: Legal, Regulatory, and Policy Changes that Affect Entrepreneurial Midsize Firms. Stamford, CT: JAI Press, 1998, pp. 23-42.

"Telephone Subsidies, Income Redistribution, and Economic Welfare," in Roger G. Noll and Monroe E. Price, <u>A Communications Cornucopia: Markle Foundation Essays on Information Policy</u>. Washington: The Brookings Institution, 1998.

"Electric Restructuring and Consumer Interests: Lessons from Other Industries," <u>The Electricity Journal</u>, Volume 11, No. 1, January/February 1998.

"Is it Time to Eliminate Telephone Regulation?" in Donald L. Alexander (ed.), <u>Telecommunications Policy: Have Regulators Dialed the Wrong Number?</u>, Westport, CT: Praeger, 1997, pp. 17-30.

"Competition and Regulation in the U.S. Video Market," <u>Telecommunications Policy</u>, Vol. 21, No. 7, 1997, pp. 649-660.

"Are We Deregulating Telephone Services? Think Again." <u>Brookings Policy Brief</u>, Number 13, March 1997

"Are Telecommunications Facilities 'Infrastructure?' If They Are, So What? Regional Science and Urban Economics, 27 (1997), pp. 161-79.

"Economic Deregulation and Customer Choice: Lessons for the Electric Utility Industry," (with Jerry Ellig), Center for Market Processes, George Mason University, 1997.

"From Competitiveness to Competition: The Threat of Minimills to Large National Steel Companies," Resources Policy, Vol. 22, Nos. 1/2, March/June 1996, pp.107-118.

"Clearing the Air: EPA's Self-Assessment of Clean-Air Policy," (with Frederick H. Rueter and Wilbur A. Steger), Regulation, 1996, Number 4, pp. 35-46.

"Phone Rates in a Deregulated Market," The Brookings Review, Summer 1996.

"Competition and Regulatory Policies for Interactive Broadband Networks," (with J. Greory Sidak), Southern California Law Review, July 1995.

"The Unregulated Infobahn," (with J. Gregory Sidak), Policy (New Zealand), Winter 1995.

"Managing the Transition to Deregulation in Telecommunications," in Steven Globerman, W.T. Stanbury, and Thomas A. Wilson (eds.), <u>The Future of Telecommunications Policy in</u> Canada. University of British Columbia and the University of Toronto, 1995.

"Productivity Growth in the Telephone Industry Since 1984," (with Jonathan Galst) in Patrick Harker (ed.), <u>The Service Productivity and Quality Challenge</u>, Dodrecht: Kluwer Academic Publishers, 1995, Chapter 14.

"Cable Television: Reinventing Regulation," The Brookings Review, Winter 1994, pp. 12-15.

"Explaining Regulatory Policy" (with Clifford Winston), <u>Brookings Papers on Economic</u> Activity, Microeconomics, 1994, pp. 1-31.

"Pricing Issues in Telecommunications," Maine Policy Review, Vol. 3, No. 1, May 1994.

"Regulation and the "Rights" Revolution: Can (Should) We Rescue the New Deal?" <u>Critical Review</u>, Vol. 7 Nos. 2-3, 1993, pp. 193-204.

"Comment: Transactions Prices," <u>Price Measurement and Their Uses</u>, (Murray F. Foss, Marilyn E. Manser, and Allan H. Young, eds.), University of Chicago Press, 1993.

"Pollution Controls" in David R. Henderson (ed.), <u>The Fortune Encyclopedia of Economics</u>, New York: Warner Books, 1993.

"Relaxing the Regulatory Stranglehold on Communications," <u>Regulation</u>, Summer 1992, pp. 26-35.

"Regulating Communications: Creating Monopoly While Protecting Us From It," <u>The Brookings Review</u>, Summer 1992, Volume 10, No. 3, pp. 34-39.

- "Policy Watch: Corporate Average Fuel Economy Standards," <u>Journal of Economic Perspectives</u>, Spring 1992, pp. 171-80.
- "Why Is the Cost of Environmental Regulation So High?" Center for the Study of American Business. St. Louis: Washington University, Policy Study No. 110, February 1992.
- "Liberalization Without Deregulation: Telecommunications Policy During the 1980s," Contemporary Policy Issues, October 1991.
- "Halfway Home: U.S. Telecommunications (De)Regulation in the 1970s and 1980s," in Jack High (ed.), Regulation: Economic Theory and History. Ann Arbor: The University of Michigan Press, 1991.
- "Efficiency and Productivity," in Barry G. Cole (ed.), <u>After the Breakup: Assessing the New Post-AT&T Divestiture Era</u>. New York: Columbia University Press, 1991.
- "The Politics of Energy: New Fuel Economy Standards?" (with John D. Graham), <u>The American Enterprise</u>, March/April 1991.
- "The Clean Air Act at Twenty," Journal of Regulation and Social Costs, September 1990.
- "Fragmentation of the Telephone Network" in Paula Newberg (ed.), <u>New Directions in Telecommunications Policy</u>. Durham, NC: Duke University Press, 1989.
- "The Effect of Fuel Economy Standards on Automobile Safety," (with John D. Graham), <u>Journal of Law and Economics</u>, April 1989.
- "Surprises from Telephone Deregulation and the AT&T Divestiture," <u>American Economic</u> Review, May 1988, pp. 323-327.
- "The Regional Shift of U.S. Economic Activity" in Robert E. Litan, et al., American Living Standards, Washington, DC: The Brookings Institution, 1988.
- "Deregulation and Divestiture in the U.S. Telecommunications Sector" in <u>Economic</u> <u>Deregulation</u>: <u>Promise and Performance</u>. Proceedings of the 1987 Donald S. MacNaughton Symposium, Syracuse University, 1988.
- "Whatever Happened to Deregulation?" in David Boaz (ed.), <u>Assessing the Reagan Years</u>. Washington, DC: The CATO Institute, 1988.
- "Regulatory Reform: Are We Ready for the Next Phase?" in <u>The Brookings Review</u>, The Brookings Institution, Winter 1988/89.

"Telecommunications Policy in the Reagan Era," <u>Regulation</u>, Washington, DC: American Enterprise Institute, 1988, Number 3, pp. 18-19.

"A Sectoral Perspective: Steel" in Robert M. Stern, <u>et.al.</u> (eds.), <u>Perspectives on a U.S.-Canadian Free Trade Agreement</u>, Washington, DC: The Brookings Institution, 1987.

"The Effects of U.S. Trade Protection for Autos and Steel," <u>Brookings Papers on Economic Activity</u>, 1987:2, The Brookings Institution.

"Has the AT&T Breakup Raised Telephone Rates?" in The Brookings Review, Winter 1987.

"Public Policy and the Private Auto," (with Theodore E. Keeler) in Gordon, <u>et.al.</u> (eds.), <u>Energy: Markets and Regulation, Essays in Honor of M.A. Adelman</u>. Cambridge, MA: MIT Press, 1986

"Materials Economics, Policy, and Management: An Overview," with Michael B. Bever, in Encyclopedia of Materials Science and Engineering, Pergamon Press, 1986.

"Metals Industries: International Structure," in <u>Encyclopedia of Materials Science and Engineering</u>, Pergamon Press, 1986.

"The Steel Industry in Transition," <u>Materials and Society</u>, Pergamon Journals Ltd., Vol. 10, No. 2, 1986.

"The Public Interest in Metals Policy," in David A. Gulley and Paul Duby (eds.), <u>The Changing World Metals Industries</u>. New York: Gordon and Breach, 1986.

"Economic Rents as a Barrier to Deregulation," The CATO Journal, Spring/Summer 1986.

"The Transformation of U.S. Manufacturing," <u>Industrial Relations</u>, Spring 1986."Investment and Productivity Growth in the Steel Industry: Some Implications for Industrial Policy," in Walter H. Goldberg, Ailing Steel: The Transoceanic Quarrel, Gower, 1986.

"The EC-US Steel Trade Crisis," in Loukas Tsoukalis (ed.), <u>Europe</u>, <u>America</u>, <u>and the World Economy</u>, Oxford: Basil Blackwell, 1986.

"Why Should We Regulate Fuel Economy at All?" in The Brookings Review, Spring 1985.

"An Acid Test for Congress," Regulation, September/December 1984.

"Import Quotas and the Automobile Industry: The Costs of Protectionism," <u>The Brookings</u> Review, Summer 1984.

"Automobile Safety Regulation and Offsetting Behavior: Some New Empirical Estimates," (with John D. Graham), American Economic Review, Papers and Proceedings, May 1984.

"The Political Economy of Clean Air: Practical Constraints on White House Review," in V. Kerry Smith, <u>Environmental Policy Under Reagan's Executive Order: The Role of Benefit-Cost Analysis</u>, University of North Carolina Press, 1984.

"The Marketplace: Economic Implications of Divestiture," (with Bruce M. Owen), in Harry M. Shooshan III, <u>Discounting Bell: The Impact of the AT&T Divestiture</u>, Pergamon Press, 1984.

"Environmental Policy in the Reagan Administration," (with Paul R. Portney), in Paul R. Portney (ed.), Natural Resources and the Environment: The Reagan Approach, The Urban Institute and Resources for the Future, 1984.

"The Emerging Competition in the U.S. Telecommunications Market" in <u>New Opportunities</u> for Entrepreneurship, The Kiel Institute, 1984.

"Deregulation: The U.S. Experience," <u>Zeitschrift fur die gesamte Staatswissenshaft</u>, October 1983, pp. 419 - 434.

Review of John Zysman and Laura Tyson, <u>American Industry in International Competition</u>, Science, Vol. 222, October 21, 1983.

"Air Pollution, Environmentalists, and Coal Lobby," in Roger G. Noll and Bruce M. Owen (eds.), <u>The Political Economy of Deregulation</u>, American Enterprise Institute, 1983.

"The Use of Environmental Policy to Reduce Economic Growth in the Sun Belt: The Role of Electric-Utility Rates" in Michael A. Crew (ed.), <u>Regulatory Reform and Public Utilities</u>, Lexington Books, 1982.

"The Cost of Automobile Safety and Emissions Regulation to the Consumer: Some Preliminary Results," (with Theodore E. Keeler and Lester B. Lave), <u>American Economic</u> Review, May 1982.

"Environmental Policy," Regulation, March/April 1982.

"Has Reagan Dropped the Ball?" in Regulation, November/December 1981.

"The Use of Cost-Benefit Analysis in Regulatory Decision-Making," <u>Annals New York Academy of Sciences</u>, 1981."The Deregulation of Cable Television," (with Stanley M. Besen), <u>Law and Contemporary Problems</u>, Duke University School of Law, Vol. 44, No. 1, Winter 1981.

"The Impossibility of Finding a Mechanism to Ration Health Care Resources Efficiently" in <u>A New Approach to the Economics of Health Care</u>, Mancur Olson (ed.), American Enterprise Institute for Public Policy Research, 1981.

"Pollution Controls and Productivity Growth in Basic Industries" in <u>Productivity Measurement</u> in Regulated Industries, Academic Press, 1981.

"Where is the Public Interest in Broadcasting Regulation?" in Regulation and the Future Economic Environment-Air to Ground, Charles F. Phillips, Jr. (ed.), December 1980.

"The Environmental Protection Agency," (On Saving the Kingdom: Advice for the President-Elect), Regulation, November/December 1980.

"Steel Imports: Dumping or Competition?" in Regulation, July/August 1980.

"Regulation and Productivity Growth" in <u>Proceedings: Conference on Productivity</u>, Federal Reserve Bank of Boston, Martha's Vineyard, June 1980.

"The Prospects for Regulatory Reform," <u>Government Regulation: New Perspectives</u>, Andrew Blair, ed., Pittsburgh: University of Pittsburgh, 1980.

"The Economics of the Current Steel Crisis in OECD Member Countries" in <u>Steel in the 80's</u>, Organisation for Economic Co-operation and Development, Paris, 1980.

"Environmental Control Is Out of Control," <u>Chemical and Engineering News</u>, Vol. 57, April 23, 1979.

"Paying for Government Policy Through the Price Level" in Clarence C. Walton (ed.), Inflation and National Survival, 1979.

"Is Government Regulation Crippling Business?" in Saturday Review, January 20, 1979.

"Federal Government Initiatives to Reduce the Price Level," <u>Brookings Papers on Economic Activity</u>, 1978:2.

"Competition and 'Dumping' in the U.S. Steel Market," Challenge, July/August 1978.

"Regulation of Television Broadcasting: How Costly is the 'Public Interest'?" in <u>Regulation</u>, January/February 1978.

"Placing a Value on the Electromagnetic Spectrum: A Suggested Approach for FCC Decision-Making," <u>Proceedings of the Conference on Telecommunications Policy Research</u>, Airlie House, 1977.

"Theoretical Issues in the Regulation of Communications Common Carriage" in <u>Rate of</u> Return Regulation, FCC Future Planning Conference, July 1976.

"The Postwar Performance of the Motion Picture Industry," <u>The Antitrust Bulletin</u>, Spring 1975.

"An Econometric Model of the Low-Skill Labor Market," (with C.D. MacRae and Lorene Y.L. Yap), The Journal of Human Resources, Winter 1975.

"The Economic Case for a Fourth Commercial Television Network," <u>Public Policy</u>, Harvard University Press, Fall 1974.

"The Profitability of Cable Television: An Analysis of Acquisition Prices," <u>The Journal of Business</u>, University of Chicago, October 1974.

"A Reexamination of the Prophecy of Doom for Cable Television," (with Lionel L. Fray), The Bell Journal of Economics and Management Science, Spring 1974.

"Monopoly," The Dictionary of American History, Charles Scribner's & Sons, 1973.

"FCC Regulation, Monopsony, and Network Television Program Costs," <u>The Bell Journal of Economics and Management Science</u>, Autumn 1972.

Study Guide for Basic Economics (with R.S. Eckaus), Little, Brown and Company, 1972.

<u>Contemporary Issues in Economics: Selected Readings</u> (with R.S. Eckaus), Little, Brown and Company, 1972.

"Economic Subsidies in the Urban Ghetto," (with C.D. MacRae), <u>Social Science Quarterly</u>, December 1971.

"The Economic Effect of Television-Network Program 'Ownership'," <u>The Journal of Law</u> and Economics, Vol. XIV, October 1971.

"The Decline of the Franchised Dealer in the Automobile Industry," <u>The Journal of Business</u>, University of Chicago, January 1970.

"Motor Vehicle Repair, Repair-Parts Production, and the Franchised Vehicle Dealer," <u>Hearings: The Automobile Industry</u>, U.S. Senate Antitrust Subcommittee of the Committee on the Judiciary, 1969.

"Vertical Integration and the Market for Repair Parts in the United States Automobile Industry," <u>The Journal of Industrial Economics</u>, Oxford: Basil Blackwell, July 1968.

CERTIFICATE OF SERVICE

I, Mary Liz Hepburn, hereby certify that on this 13th day of January 1999, a copy of the foregoing Bell Atlantic Application for Review was served by US Mail on the following parties. Where indicated with an asterisk, service was via hand delivery.

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